

Physiology Test.

I, When the air is taken in, it goes down the trachea, bronchus and bronchioles and ends up in millions of little air sacs or alveoli, which are surrounded by capillaries. The blood in these capillaries has an abundant supply of CO_2 and very little O_2 . Air always passes from an area of high pressure to an area of low pressure and by the process of diffusion the CO_2 passes out of the blood in the capillary where there is a great deal and into the alveoli where there is very little and O_2 goes from the alveoli to the blood by the reverse manner and combines with the haemoglobin to form oxyhaemoglobin. This exchange of gases between the lungs & the blood is external respiration.

Once in the blood, the O_2 is carried around the body to the various organs & tissues requiring it, and by the same process of passing from an area of high pressure to one of low pressure, O_2 is given out into the tissues & CO_2 is taken into the blood. This is internal respiration.

II The ^{air} is breathed into the lungs when it is between the ribs and the intercostal muscles. When they contract the ribs are raised upward and outward. The diaphragm is a muscle and when it contracts it makes

a flat floor to the chest cavity instead of the usual curved one, so enlarging the chest cavity.

The lungs practically fill this cavity when the ribs are lowered & the diaphragm is raised and when the chest cavity is enlarged they have to expand to fill up the vacuum formed. This vacuum has to be filled, and so air is taken in to the lungs to expand the air sacs.

When the lungs are full, the intercostal muscles relax and the diaphragm relaxes, and the chest cavity is made smaller and the air is forced out of the lungs by the pressure of the ribs and diaphragm.

iii) 1. Always breathe through the nose, as it is equipped to prevent bacteria, dust, etc. entering the inner respiratory tracts and causing damage to them. It also warms the air to body temp, humidifies it. The mouth can do none of these things efficiently and although it may prevent bacteria entering the trachea, it has not the power to expel them from the body as has the nose.

2. Keep away from dust as much as possible as it is harmful to the respiratory system.

3. Be careful of poisonous gases as CO.

4. Treat colds and coughs carefully and as

41 advised as they can develop into more dangerous diseases affecting the lungs.

5. Keep the rooms full of fresh air so any germs there are produced will not be hanging about.
6. Always keep the room air fairly damp as otherwise mucous is produced more freely by the nose, to dampen the ingoing air. This may become a permanent state.
7. Have tonsils and adenoids removed if they cause continuous trouble, as it means they are not performing their official duties of preventing bacteria entering the lungs, but are infected themselves and are probably infecting other vital organs also.

iv The breathing is much slower when one is resting.

The nerve centre located in the base of the brain controls our breathing, and is very sensitive to changes in the blood.

If there is an excess of CO_2 breathing is speeded up to get more O_2 , thus if one is exercising hard and producing an abundance of CO_2 , one breathes harder. If O_2 is very abundant breathing slows down.

L. Crighton.

<u>Location</u>	<u>Juice</u>	<u>Enzyme</u>	<u>Food acts upon</u>	<u>Result.</u>
<u>Mouth</u>	Saliva	ptyalin	starches	Starch to sugar
<u>Stomach</u>	gastric	pepsin + renin lipase	proteins milk delicate fats	proteins into peptones & proteoses coagulates (thick) liquefies to fatty acids & glycerol
<u>Small Intestine</u>				
1. <u>Pancreas</u>	pancreatic	(A) <u>steapsin</u> (b) <u>trypsin</u> (c) <u>amylase</u> (d) <u>renin</u>	fats peptones & proteoses cooked starch milk	fatty acids & glycerol. peptides. glucose coagulates
2. <u>Liver</u>	bile		fats	fatty acids and glycerol.
3. <u>Intestinal villi</u>	Intestinal	(A) <u>trypsin</u> (b) <u>lactase</u> (c) <u>sucrase</u> (d) <u>maltase</u> (e) <u>lipase</u>	peptides as lactose (milk sugar) sucrose (cane sugar) maltose fats	amino acids. glucose or galactose glucose. glucose fatty acids and glycerol.

6. The male & female reproductive systems produce the sex cells (sperm & ovum) which, when united, initiate the development of a new individual.

Archery

Methods of teaching: Archery Simplified.
Philip Rannavel.

"Wright and Kiezy" Modern methods.

Tournaments - Regular & novel.

{ York Round - Men
National - " & Women.
Columbia - Women.

Target 48"

" on ground 48'

Equipment for Age & Sex.

Light weight bow for beginner. 15-25 lb. (Force of pull) to beginners less than 20 & for girls.

Ordinary bow 5' 8". Ten-footteen 5'. Test bow by putting on ground & seeing if its straight. String never be frayed. String waxed frequently. Point of aim best for beginner. Mark on bow where distance is in sight.

Self arrow - all of same wood.

Foetus " - Hard wood (beef wood) put in end. Strong. Expense not great. Bow & 8 arrows for 7.50. Fairly good. Target expensive 15-18. School disc.

Arrow guard Square bales of hay for home-made target. Busted so it will stand out for target face. Wide oil cloth make target & scale & paint. Equipment cared for well. Bows hung from ribbon on nail. If cannot be hung in winter should be placed on floor.

Keep dry but when brought out of storage should be put in damp place for few days. Can break by pulling string without arrow.

Good of hickory, lemon wood, yew,

Left shoulder high - left.
Leaning backwards
Hand in front of face.

Drooping low hand - low

Peeping - high.

Ball back of arm - right.

Peeping - right.

Collapses - "

Equipment Selection

A. The Bow.

Lemonwood is the best wood for everyday use. Yew is superior but the extra expense is not justified. Hance wood, hickory and osage are used but are not nearly as durable as lemonwood & are only a little less expensive. Schools and camps should use bows of materials of tried & proven merit. Fiber, raw-hide or hickory backs increase the cost but not the efficiency. A leather handle gives longer service & doesn't become as soiled as plush or velvet.

What to look for in a bow.

1. Straightness - when string look up & down each end of the bow & see that the string bisects each limb exactly. If it doesn't, the bow has a cast.
2. Dips - Bow, 1" thick at handle & cut down sharply in dips. 3" above & below handle bow should be $5/8$ " thick & should taper off gradually to the nocks. A good bow has decided dips running for not more than 3" or 4" on either side of the handle.
3. Bend - More bend in upper limb 97
than lower. Fully draw the bow & see

that the arc of the weapon starts in a clean sweep at the dip & curves smoothly to the rocks.

4. Cross section - Flat cross section $\frac{1}{3}$ wider than it is thick improves the cast.

5. Workmanship - Smooth surface, particularly the back. High polish. If the bow has horn rocks sell that the joint between bow & horn is smooth. See that the rocks are firmly glued.

6. Bow strings - Hemp - laid in glue, they are hard like a gut violin string. The loop is woven by hand, thick at both ends and tapers off in the body of the string. Hard spun flax string sized with bees wax oil also good, and are the most practical kind.

7. Weight and Size - For high school & college girls the $5\frac{1}{2}'$ bow is best in weights from 16-24 lbs.

Arrows -

1. Birch - about \$5.00 a doz. can be used in camps when equipment is only used a short time & then lies idle. Warp easily.

2. Self Arrows -

① Douglas Fir - rather brittle & prone to warp.

② Port Oxford Cedar - stiff for its weight, but brittle.

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③ Norwegian Pine - No other wood is so completely satisfactory for arrows.

It is light, stiff & tough and improves with age. It is more expensive than any other kind.

3. Footed Arrows - Footing is a splice of hard wood at the point end to prevent breakage. Two point footing is not as durable as three point footing. The cost of footing is offset by the durability.

What to look for in an Arrow.

1. Footing.
2. Straightness.
3. Roundness.
4. Nocks.

Horn nocks are best. Aluminium nocks wear the bowstring. Tubular fibre nocks come off with age, wedge fibre nocks come unglued with moisture. The wedge nock of horn is the most satisfactory.

5. Fletching - or feathering with the balloon - type of feather is best. Diagonally cut feathers are on straight and are evenly spaced.

6. Finish - High polish.
7. Weight - Materials matched sets.
8. Piles - or points. There are 2 types - the parallel and the bullet. The parallel style is better. The best way of putting on the pile is by knocking. Such piles never come off.

Arrow length & weight.

They should be matched in